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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/541,306

07/05/2005

Masahiro Murakawa

KUB-002

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7590

04/17/2008

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EXAMINER

BHARADWAJ, KALPANA

ART UNIT

PAPER NUMBER

2129

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/541,306	<b>Applicant(s)</b> MURAKAWA ET AL.	
	<b>Examiner</b> KALPANA BHARADWAJ	<b>Art Unit</b> 2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07/05/2005 &amp; 06/29/2006</u> .                             | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Status of Claims*

1. Claims 1-5 are pending.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dittmar (USPN 6144951, referred to as **Dittmar**), and further in view of Haruki (USPN 6099582, referred to as **Haruki**).

#### **Claim 1:**

Dittmar teaches a parameter tuning device, comprising:

parameter tuning (**Dittmar**, C02 especially L21-30: rapidly tuning channel parameters) means for defining chromosomes having a plurality of parameters (**Dittmar**, C04L05-10: illustrating a chromosome (ie. a parameter value ...)) of a physical model (**Dittmar**, C01 especially L50-67: a data storage system) and optimizing the parameters (**Dittmar**, C08-09 especially C08L56-67: optimization process) using a genetic algorithm based on characteristic measurement data (**Dittmar**, C02 especially L24-35: a genetic process for adaptively tuning the parameter).

Dittmar does not teach a semiconductor device. However, Haruki teaches a semiconductor device (**Haruki**, C01 L15-25: manufacture of semiconductor devices).

Dittmar and Haruki are from the same field of endeavor, genetic algorithms. It would have been obvious to one of ordinary skill in the art to have modified Dittmar's parameter tuning apparatus to be used with semiconductor devices for the benefit of solving contradictory areas of a physical layout of a semiconductor device (**Haruki**, Abstract).

**Claim 2:**

Dittmar modified by Haruki teaches a parameter tuning device according to claim 1, wherein said parameter tuning means includes generation range deciding means for obtaining a center of gravity of a parent chromosome group (**Haruki**, C04 especially L55-65: center of gravity for the node) in a vector space to determine a generation range of a child chromosome (**Haruki**, C02L35-40: vector representation) group inside a hyper-polyhedron on a vector space (**Haruki**, Abstract: graphical representation) determined from the center of gravity and values of the parent chromosome group in a crossover process (**Haruki**, C09 especially L10-15: crossover and mutation) in the genetic algorithm (**Dittmar**, C02 especially L24-35: a genetic process for adaptively tuning the parameter).

. It would have been obvious to one of ordinary skill in the art to have modified Dittmar's parameter tuning apparatus with vector and graphical representations in the crossover process of a genetic algorithm for the benefit of generating the next generation of children after k children are generated (**Haruki**, C09 especially L10-15).

**Claim 3:**

Dittmar modified by Haruki teaches a parameter tuning device according to claim 1, wherein said parameter tuning means includes an evaluation value computing means for obtaining a first evaluation value based on a linear scale and a second evaluation value based on a log scale to make a sum of the first evaluation value and the second evaluation value (**Dittmar**, C09 especially L55-67: sum of the fitness values) as an evaluation value of the chromosome in a selection process in the genetic algorithm (**Dittmar**, C02 especially L24-35: a genetic process).

**Claim 4:**

Dittmar modified by Haruki teaches a parameter tuning device according to claim 1, wherein said parameter tuning means includes normalization for unifying a scale of data in the selection process in the genetic algorithm (**Dittmar**, C02 especially L24-35: a genetic process; **EN**: normalization is an obvious step in any selection process of a genetic algorithm).

**Claim 5:**

Dittmar modified by Haruki teaches a parameter tuning device according to claim 1, wherein said parameter tuning means includes search method switching means for switching to local searching (**Haruki**, C05 especially L30-36: search space to be narrowed; **EN**: 'narrowing' the search is to switch to a local search) means when a

parameter tuning process in the genetic algorithm satisfies a predetermined condition (**Dittmar**, C06-07 especially C07L05-10: until a precondition is met).

. It would have been obvious to one of ordinary skill in the art to have modified Dittmar's parameter tuning apparatus with switching to local searching for the benefit of a faster search.

### **Examinations Considerations**

4. Examiner's Notes (**EN**) are provided with the cited references to prior art to assist the applicant to better understand the nature of the prior art, application of such prior art and, as appropriate, to further indicate other prior art that maybe applied in other office actions. Such comments are entirely consistent with the intent and spirit of compact prosecution. However, and unless otherwise stated, the Examiner's Notes are not prior art but a link to prior art that one of ordinary skill in the art would find inherently appropriate.

5. Examiner has cited particular columns and line numbers (or paragraphs) in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the Applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed

by the Examiner. The entire reference is considered to provide disclosure relating to the claimed invention.

### ***Conclusion***

6. Claims 1-5 are rejected.
7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
  - a. Bonissone, USPN 5995737, cited for parameter tuning.

### ***Correspondence Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KALPANA BHARADWAJ whose telephone number is (571)270-1641. The examiner can normally be reached on Monday-Friday 7:30am 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent can be reached on (571) 272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2129

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bharadwaj Kalpana/  
Examiner, Art Unit 2129

/David R Vincent/  
Supervisory Patent Examiner, Art Unit 2129